In each of the embodiments of the present invention, it is preferred that the stiffening plate(s) and ceramic plate or tile or plates or tiles is/are machined to be, in combination, within 0.005 inches of the corresponding dimensions of the sub-chambers or cells within which they are placed. In accordance with the teachings of the present invention, it is preferred that the metal material used to encapsulate the ceramic material consists of a material having relatively low density, high strength and good ductility along with a coefficient of thermal expansion higher than the coefficient of expansion for the ceramic material encapsulated therewithin. Applicants have found that an alloy of Titanium known as Ti-6Al-4V or Ti-6Al-4V ELI (Extra Low Interstitials) is a suitable material for this purpose. Ti-6Al-4V has a relatively low density (4.5 g/cc), relatively high strength (900 MPa), and good ductility (yield strength of 830 MPa at 0.2% yield), and can be bought already annealed according to Mil T 9046 spec. The thermal expansion of Ti-6Al-4V is about 10.5×10^{-6} in/in °C from 0-600 °C, a coefficient considerably higher than that of dense SiC which has a thermal expansion coefficient of 4.1×10^{-6} in/in °C from 0-600 °C, a difference in which the thermal expansion coefficient for the Titanium alloy is over 2½ times the thermal expansion coefficient for the ceramic material.

In the preferred embodiment of the present invention, the ceramic material employed may consist of pressure assisted (PAD) SiC-N, one of a family